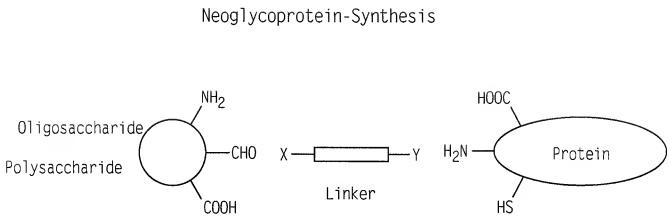

Neoglycoprotein-Synthesis
NH2
Oligosaccharide
Polysaccharide
CHO
COOH
X
Y
Linker
HOOC
H2N
Protein
HS

FIG. 1

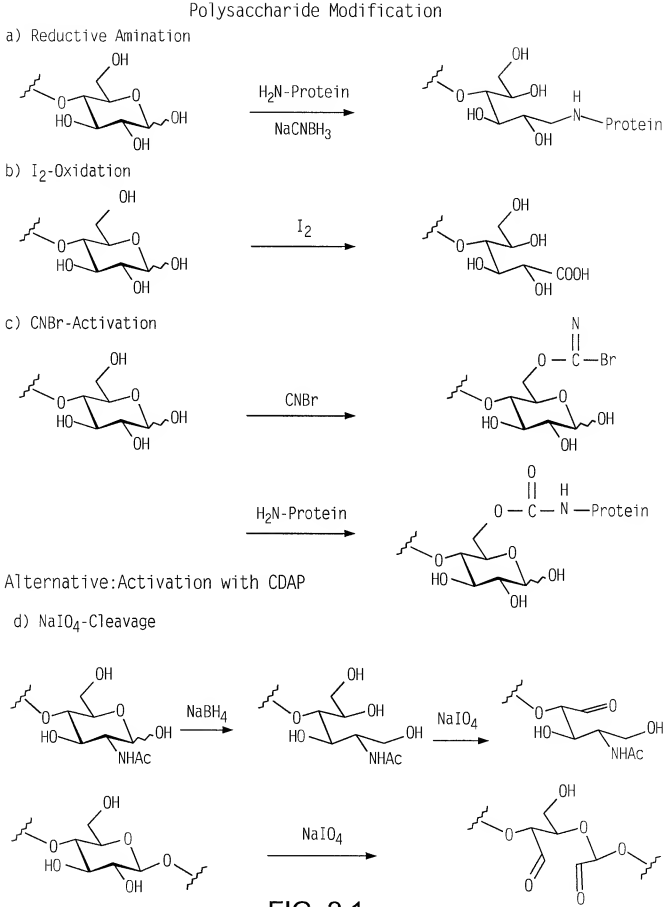

Polysaccharide Modification
a) Reductive Amination
H2N-Protein
NaCNBH3
Protein
b) I2-Oxidation
I2
COOH
c) CNBr-Activation
CNBr
H2N-Protein
Protein
Alternative:Activation with CDAP
d) NaIO4-Cleavage
NaBH4
NaIO4
NaIO4

FIG. 2.1

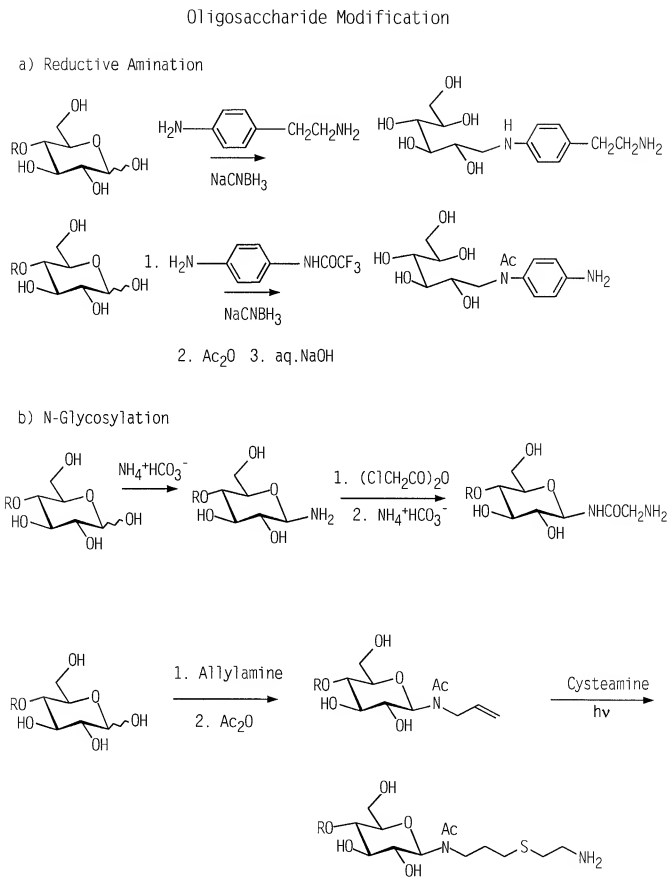
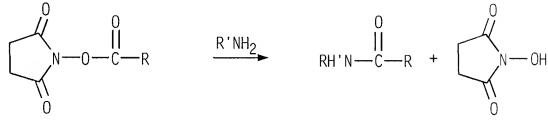

Oligosaccharide Modification
a) Reductive Amination
NaCNBH3
1. H2N
NHCOCF3
NaCNBH3
2. Ac2O 3. aq.NaOH
b) N-Glycosylation
NH4+HCO3-
1. (ClCH2CO)2O
2. NH4+HCO3-
1. Allylamine
2. Ac2O
Cysteamine
hν

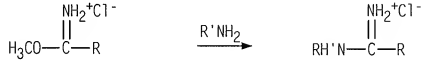
FIG. 2.2

NH_2-and CHO/COOH-Coupling Reactions

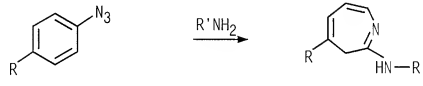
1a: N-Hydroxysuccinimides



1b: Imido esters



1c: Aryl azides



2: Hydrazides

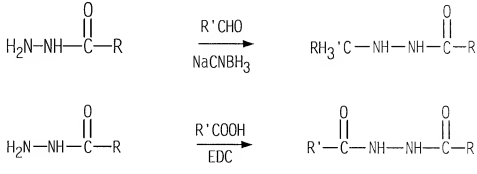
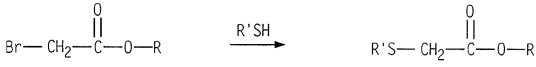


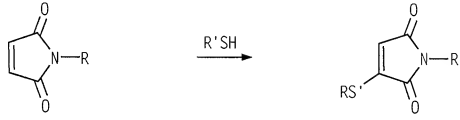
FIG. 3.1

SH-Coupling Reactions

3a: Haloacetates



3b: Maleimides

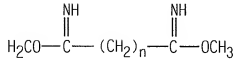


3c: Pyridyl disulfides

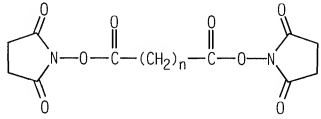
FIG. 3.2

Crosslinkers

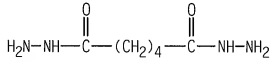
1: Homobifunctional

a) 

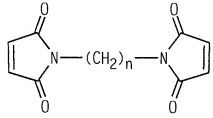
DMA (n=4)
DMP (n=5)
DMS (n=6)

b) 

DSG (n=3)
DSS (n=6)

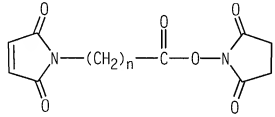
c) 

ADH

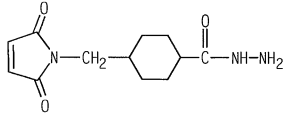
d) 

BMOE (n=2)
BMB (n=4)
BMH (n=6)

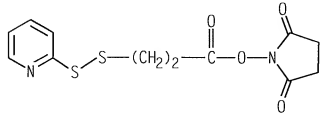
2: Heterobifunctional

a) 

AMAS (n=1)
GMBS (n=3)
EMCS (n=5)

b) 

M_2C_2H

c) 

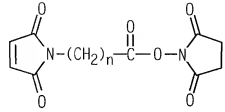
SPDP

FIG. 4

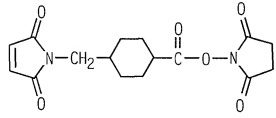
Linkers for SH Couplings

1: Maleimide

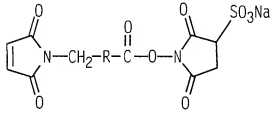
a)



AMAS (n = 1)
GMBS (n = 3)
EMCS (n = 5)

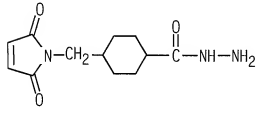


SMCC



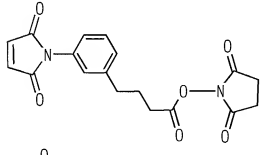
Sulfo-GMBS
Sulfo-EMCS
Sulfo-SMCC

b)

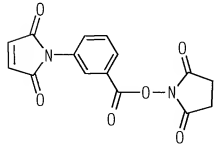


M_2C_2H

c)



SMPB

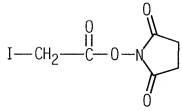


MBS

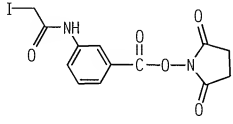
FIG. 5.1

Linkers for SH Couplings

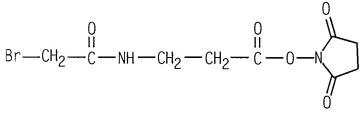
2: Haloacetate



SIA

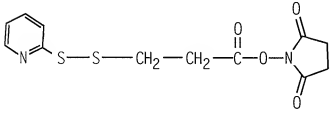


SIAB

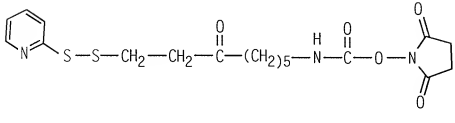


SBAP

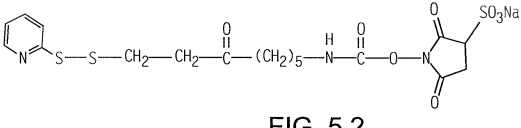
3: Pyridyldisulfide



SPDP



LC-SPDP



Sulfo-LC-SPDP

FIG. 5.2